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Shoji Tokuda

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EXAMINER

JONES, CHRISTOPHER P

ART UNIT

PAPER NUMBER

1797

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DELIVERY MODE

12/02/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|---|--------------------------------------|--|
| Office Action Summary | Application No. 10/578,748 | Applicant(s) TOKUDA ET AL. | |
| | Examiner CHRISTOPHER P. JONES | Art Unit 1797 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 September 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-4 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>20090928</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2003-512147 A [translation] assigned to Hollingsworth & Vose Air Filtration LTD

(*Hollingsworth*) in view of JP 2002-348480 A [translation] assigned to Toyobo Co., Ltd. (*Toyobo*).

3. Regarding claim 2, *Hollingsworth* discloses a charged filter material comprising at least 20 mass% of polyester fiber and at least 30 mass% of polyolefin fiber (paragraphs 6-13).

4. *Hollingsworth* does not explicitly disclose that the charged filter material is friction charged. Nevertheless, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the charged material be friction charged, since it was known in the art that friction charging a filter is a useful way to capture fine particles in the air (see Applicant's specification page 1, lines 15-22).

5. *Hollingsworth* does not explicitly disclose phosphinic and/or sulfonic acid copolymerized with a polyester molecular chain. *Toyobo* discloses that phosphinic acid copolymerized with a polyester molecular chain increases the fire retardancy of the filter

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material (see *Toyobo* claims; paragraphs 6-7, 15-17, and 23). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the charged filter material, of *Hollingsworth*, so that phosphinic acid is copolymerized with a polyester molecular chain for the purpose of increasing the fire retardancy of the filter material.

6. Regarding claim 3, *Hollingsworth* in view of *Toyobo* discloses a filter material with the same preferred structure as contained in Applicant's claims/specification; therefore, it is inherent that the filter material has an efficiency of collection of particles measured by using NaCl particles having a diameter or 0.3 μm of 73% or larger.

7. Regarding claim 4, *Hollingsworth* in view of *Toyobo* discloses a filter material with the same preferred structure as contained in Applicant's claims/specification; therefore, it is inherent that the filter material is self-extinguishing in the combustibility classification according to JIS D 1201 (1977) method of combustibility test for organic materials disposed in automobile compartment. See MPEP 2112.

Response to Arguments

8. Applicant's arguments filed 09/28/2009 have been fully considered but they are not persuasive. Applicant argues that one of ordinary skilled in the art would modify the filter material of *Hollingsworth* by replacing the fibers that can be charged with electric charges (the polyolefin fibers) with the polyester fibers containing a phosphinic acid compound of *Toyobo*. While the examiner does not disagree that this is one possible way that one of ordinary skill in the art might combine the references of *Hollingsworth*

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and Toyobo, this does not preclude that one of ordinary skill could combine the references such that the polyester of Hollingsworth is substituted for a polyester copolymerized with phosphinic acid, as taught by Hollingsworth. One of ordinary skill in the art would be motivated to replace the polyester fibers of Hollingsworth with the polyester fibers copolymerized with phosphinic acid, of *Toyobo*, for the purpose of increasing the fire retardancy of the filter material (see *Toyobo* claims; paragraphs 6-7, 15-17, and 23).

9. The Applicant also argues that the specific amounts of copolyester fiber containing phosphinic acid, and polyolefin, are not disclosed in the references. However, if the polyester fibers of Hollingsworth were modified to be copolymerized with phosphinic acid for the purpose of increasing the fire retardancy of the filter material, one of ordinary skill in the art would still expect the ratios of polyester to polyolefin, taught by Hollingsworth, to work effectively as a filter material. Hollingsworth discloses that the amount of polyester can range from 20 to 80%, and likewise, the amount of polyolefin can range from 20 to 80% (see Hollingsworth paragraph 9). Therefore, one of ordinary skill in the art would expect that at least 20 mass% of polyester fiber copolymerized with phosphinic acid and at least 30 mass% polyolefin, would be an effective filter material. Furthermore, the exact amounts of fibers are considered to be general conditions that would have been routinely optimized by one having ordinary skill in the art in order to provide optimal filtration efficiency. MPEP 2144.05.

10. The Applicant also argues that the filter materials of the present invention comprising polyester fibers in which a phosphinic acid compound is copolymerized with

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a polyester molecular chain exhibit a higher efficiency of particle collection than a filter material comprising general polyester fibers. However, Toyobo [translation] discloses that polyester fibers in which a phosphinic acid compound is copolymerized with a polyester molecular chain not only exhibits improved fire retardancy, as compared to convention polyester, but also exhibits an improved electrostatic property (see Toyobo paragraph 6), which would yield a higher efficiency of particle collection, as compared to conventional polyester. Therefore, the results of higher efficiency of particle collection, shown by Applicant, would not be unexpected to one having ordinary skill in the art, and therefore do not render the claims nonobvious.

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTOPHER P. JONES whose telephone number is (571)270-7383. The examiner can normally be reached on Monday - Thursday, 8:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571)272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/C. P. J./
Examiner, Art Unit 1797

/ROBERT J. HILL, JR/
Primary Examiner, Art Unit 1797